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PATENT  
laurencot2.d10IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of : Confirmation No. 3764  
Jean LAURENCOT : Group Art Unit 3743  
Application No. 10/531,765 : Examiner: Jiping Lu  
Filing Date: April 19, 2005 : (571) 272-4878  
For a Patent for a :  
METHOD FOR TREATING A LOAD OF :  
STACKED LIGNEOUS MATERIAL ELEMENTS, :  
IN PARTICULAR A LOAD OF WOOD BY :  
HIGH-TEMPERATURE HEAT TREATMENT :

DECLARATION OF JEAN LAURENCOT

I, the undersigned, Jean Laurencot, hereby state that:

1. I was born February 20, 1937, at 25640 Roulans, France, and currently reside at 14B, rue de la Gare, 25720 Beure, France.

2. The following information discusses the risks which can be caused by installations for the treatment of wood at high temperature when insufficiently protected in the control and maintenance of a neutral environment within the treatment enclosure.



3. Wood which is heat treated at high temperature presents undeniable advantages because of its good resistance to putrescibility and its low dimensional variation. The means (or furnaces) which make it possible to carry out a treatment up to 230°C require for their design, as well as for their realization and their use, very detailed attention as well as extremely specific and reliable means.

4. Because it is known that certain wood turpentine ignites at temperatures lower than 200°C, it is easily understood that to carry such materials to 230°C will involve very specific design of the tool (or furnace) used for this. In addition to a tight treatment enclosure, the tool (or furnace) should include a set of means capable of creating and maintaining the protected, neutral environment necessary and essential to avoid ignitions of the load of wood as well as the risks of explosion.

5. It is known that accidents have occurred when raising the temperatures above 200°C on various installations which do not include the means essential for doing this. The following gives some examples which will confirm the need to give the above-discussed considerations the most rigorous attention:

A. In 2006, in the North-East of France, a recently installed furnace which anticipated the need to practice a heat



treatment up to 230°C was partially destroyed by a fire. The 10m<sup>3</sup> load of wood was destroyed. It was determined that this resulted from a sealing defect, and the penetration of oxygen into the furnace at high temperature, coupled with a defect in operation of the associated safety measures. This furnace was repaired and returned to service a few months later.

B. In 2009, this same furnace was again partially destroyed by a new fire, apparently, for the same causes as in 2006. The furnace was again repaired and returned to service at the end of 2009.

C. Between 1998 and 2008, two furnaces of another manufacture were destroyed by explosions or fires.

D. Other types of furnaces intended for the treatment of wood at high temperature, and which did not have the means necessary for avoiding the hazards of explosion or fire, were limited in their operation to treatments not exceeding 170 to 190°C.

6. The results of quality control tests practiced for more than one decade on heat treated wood samples, under various processes, show that the changes brought about by this type of treatment clearly modified the principal properties which had penalized such materials in their natural state, including



properties such as dimensional variation and the lack of resistance to ageing which continue when the wood is only subjected to a traditional drying.

7. The principal and advantageous improvements noted on the wood which underwent heat treatment are brought about by degradation, under high temperature, of hemicelluloses and other extractable substances which make wood absorbent and putrescible in its natural state. It has been noted that the best results are obtained with wood which underwent a treatment above 190°C, especially with regard to the terpenes of leafy trees, which require treatment temperatures higher than for coniferous trees, for example.

8. For most terpenes, the optimum results were obtained on wood which had undergone treatment at a temperature at least equal to 230°C. It is further at this temperature that it can be observed, in furnaces which allow this level of treatment to be reached, the strongest concentration in the rejection of gas, smoke and tar resulting from the degradation of extractable substances.

9. For these reasons, a heat treatment of wood cannot be considered to be "at high temperature" if the heat treatment is carried out at a temperature lower than 190°C.



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I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

28 April 2010

DATE

BY: Jean Laurençot